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with the life history of the crustacea in later palæozoic and in neozoic times. The Wollaston medal was awarded to Prof. E. Suess, the Murchison medal and part of the proceeds of the Murchison fund to T. Mellard Reade, and the Lyell medal and part of the proceeds of the Lyell fund to A. Smith Woodward.

THE Academy of Science of the University of Oregon was organized at Eugene, Ore., on January 10th. A constitution was adopted and Prof. Condon was elected President; Dr. T. W. Harris, Vice-President, and Prof. F. L. Washburn, Secretary and Treasurer. At the first regular meeting, which was held on January 25th, Prof. Condon read a paper on 'Two recently discovered fossils,' and several informal communications were presented.

PROF. AGASSIZ and his party, which includes Dr. W. McM. Woodworth and Dr. A. G. Mayer, are now in San Francisco, and will sail shortly for Australia in the steamship *Monowai*. A steamer has been chartered in Australia for the expedition to the Great Barrier Reef.

MR. J. B. HATCHER, of Princeton College, special agent and collector for the Bureau of Ethnology at Washington, and Mr. O. A. Peterson, collector for the American Museum of National History, New York, have embarked for Patagonia on the steamship *Galileo*.

A PARISIAN company has placed pneumatic tires on twenty of its cabs. It is claimed that these not only add greatly to the comfort of those using them, but also effect an actual economy. The average cost for repairs on a Paris cab is about 50 cents a day, and it is said that the pneumatic tires reduce this to one-half. The weight saved in the tires is about 100 lbs. and the whole vehicle may be built more lightly. It is also probable that even apart from the decrease in weight it is easier for a horse to draw a carriage with pneumatic tires.

WE take from *Natural Science* the following items: An expedition of sixteen men, headed by Dr. Cook, has started in two small vessels of 100 tons each for the bay of Erebus and Terror. Six of the men are students of science. The naturalists, Messrs. Austen and Cambridge, on the Siemens telegraph expedition to the Amazon, have already begun successful operations,

the fact that the 'Faraday' was stuck for a whole week on a mud-bank at the west end of Parana de Buyassu in no wise interfering with the aims of the collectors. The chief find at present has been two specimens of *Peripatus*, belonging apparently to different species. The naturalists decided to stay at Santarem, while the 'Faraday' proceeded to Manaus, which place it reached on February 8th, all well. Prof. H. de Lacaze Duthiers will, as in former years, conduct an excursion at Banyuls during the Easter vacation, that is, from March 28th to April 11th. Those joining the party can obtain return tickets from Paris to Banyuls for 46 francs. Among those who will attend are Professors Von Graff, of Graz; Pruvot, of Grenoble, and Yung, of Geneva, and probably some naturalists from Barcelona. The Professor desires to extend through us a cordial invitation to any English naturalists. The hydrographical exploration of the Skagerack has just been begun under the auspices of the Swedish government and the direction of Prof. O. Pettersson.

UNIVERSITY AND EDUCATIONAL NEWS.

THE bill establishing a National University of the United States has been reported favorably by the Senate committee. It grants a charter to the University, provides for its government, grants it the ground in the city of Washington designated by President Washington as a site for a national university, and appropriates \$15,000 for the fiscal year ending on June 30, 1897, and \$25,000 for the year following.

At the recent meeting of the Board of Trustees of the College of New Jersey at Princeton it was voted to change the charter name of the institution to Princeton University. The fund which is being raised in commemoration of the Sesquicentennial next October is already over \$900,000, a large proportion of which, it is said, will be devoted to the development of the graduate department.

At a special meeting of the Yale corporation it has been decided to construct a new dormitory on York street to cost \$100,000.

PROF. JAMES SETH, now of Brown Univer-

sity, has been elected professor of ethics in Cornell University.

THE promotion of Associate Prof. George F. Atkinson to the professorship of botany at Cornell University will be followed by a reorganization of the courses of instruction in the department which will go into effect at the opening of the coming year. Assistant Prof. W. W. Rowlee has been promoted to the highest grade of assistant professor; E. J. Durand, Sc. D., has been appointed instructor in botany, and K. M. Wiegand, assistant. The following advanced and graduate courses in botany are offered for the coming year: By Prof. Atkinson and Instructor Durand, comparative morphology and embryology, mycology and algology. By Assistant Prof. Rowlee and Assistant Wiegand, comparative histology, systematic botany and dendrology.

ADJUNCT PROF. W. H. ECHOLS has been elected by the Board of the University of Virginia to the full chair of mathematics to succeed Prof. C. S. Venable, who retires on account of ill-health. J. Morris Page, of Johns Hopkins University, has been elected adjunct professor.

THE senate of Cambridge University has rejected the proposition to appoint a committee to consider the question of conferring degrees upon women by a vote of 186 to 171.

DISCUSSION AND CORRESPONDENCE.

HEREDITY AND INSTINCT.*

IN his able posthumous work on *Post-Darwinian Questions, Heredity and Utility*, the lamented G. J. Romanes sums up the evidence for the inheritance of acquired characters in the final statement that only two valid arguments remain on the affirmative side; and to each of these arguments he has devoted considerable space. One of these arguments is from what he calls 'selective value,' and the other from the 'co-adaptations' found in the instincts of animals. He says (p. 141): "Hence there remain only the arguments from selective value and co-adaptation." If we take the in-

stincts as illustrating also the application of the principle of 'selective value,' we may gather the evidence which Mr. Romanes was disposed to cling to for the inheritance of acquired characters into a single net, and enquire as to the need of resorting to the Lamarckian factor in accounting for the origin of instinct. I wish to suggest some considerations from the psychological side, which seems to me entirely competent to remove the force of these two arguments, and to show to that extent that the instincts can be accounted for without appeal to the hypothesis of 'lapsed intelligence,' as the use-hypothesis, as applied to this problem of instinct, is called; in other words, to show that Darwin and Romanes were not correct in considering instinct as 'inherited habit.'

The argument from co-adaptation requires the presence of some sort of intelligence in an animal species; the point being that since the coördination of muscular movements found in the instincts are so co-adapted they could not have arisen by gradual variations. Partial adaptations tending in the direction of an instinct would not have been useful; and intelligence alone would suffice to bring about the coördinations which are too complex to be accounted for as spontaneous variations. These intelligent coördinations then become habits by repetition in the individual and show themselves in later generations as inherited habits due to 'lapsed intelligence.' Assuming, then, with Romanes—whom we may take as the most recent upholder of the view—the existence of some intelligence in a species antecedently to the appearance of the instinct in question, we may be allowed that supposition and resource.

I. But now let us ask how the intelligence brings about coördinations of muscular movement. The psychologist is obliged to reply: Only by a process of selection (through pleasure, pain, experience, association, &c) from certain alternative complex movements which are already possible for the limb or member used. These possible combinations are already there, born with him, or resulting from his previous habits. The intelligence can never, by any possibility, create a new movement, or effect a new combination of movements, if the

*Discussion (revised), following Prof. C. Lloyd Morgan before the New York Academy of Sciences, January 31, 1896.